MAP 80-4000

FEATURES

- 80/110 Watts Peak Power
- Four Outputs
- Automatic 110/220 Input Selection
- FCC & VDE EMI, Class "B" (conducted)
- Output Good/Power Fail Signal
- Fully Regulated, All Outputs
- Combination Terminal Block/Quick Disconnect Locking Wafer Connectors
- Two Year Warranty
- VDE, IEC, CSA & UL Safety Specs

DESCRIPTION

The MAP 80 Series is a 80W continuous with peak to 110W, high performance line of single and multiple output power supplies in 7.2" x 4.2" x 1.8" open frame chassis. Engineered with an "International" philosophy the MAP80 series gives the system designer the features that allow maximum flexibility. Features like Automatic AC Input Selection, onboard FCC & VDE "B" filtering and power fail are all standard. The chassis accepts M4 or 6-32 screws and has .170" through holes at each corner for worldwide mounting. Universal input and output terminations are provided with Power-One's unique combination terminal block/quick disconnect locking wafer connectors.

INPUT

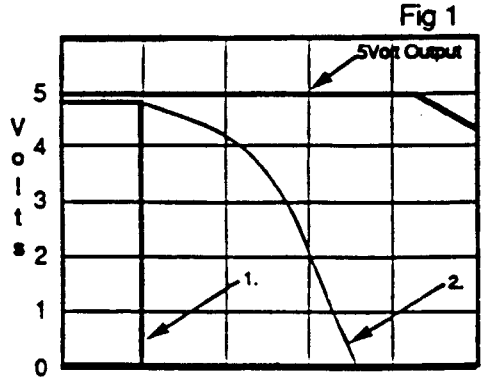
SYMBOL	PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
P_{out}	Output Power	50 ° C Ambient convection cooled 50 ° C Ambient convection cooled, peak (2 minute)			80 110	Watts
V_{in}	Input Voltage	AC Input	90 175		135 264	VAC
Iin	Input current	Vin = 90VAC @ 80W		2.5		Arms
$I_{in\ pk}$	Inrush Surge Current	Vin = 264VAC Cold Start			45	Apk
f_i	Input Frequency	With AC input	47		63	Hz
t_{hu}	Hold Up Time	After last AC charge point with 115/230 VAC (80 watts)See Figure 6	20			msec
t_{pfw}	Input Power-Fail Warning	Logic signal before regulation dropout due to loss of input power. Internally pulled up to V1. Max sink current = 10mA. See Fig 1				msec
		V_1 @ 10A, V_2 @ 2.5A (80 Watts)	4			
		V_1 @ 1A (5 Watts)	70			
V_{pf}	Power Fail Trip Point	V_1 @ 10A, V_2 @ 2.5A, (80 Watts)		88.5		Volts
t_{ini}	Power up Initialization period	Cold start @ Full Load, 90VAC			5.0	sec
η	Efficiency	V_1 @ 10A, V_2 @ 2.5A (115 VAC)	73			%

All Measurements @ 25° C ambient unless otherwise noted.

DRAWING NO. 88818 REV G

Typical Power Fail Timing

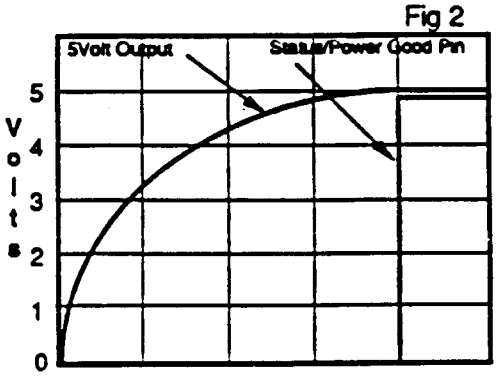
Fig 1



Time: 1ms/DIV

Typical Power Good Timing

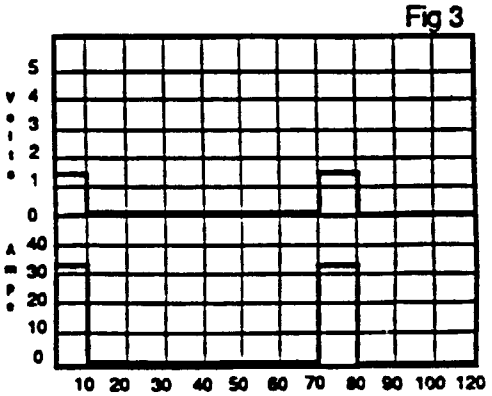
Fig 2



Time: 5ms/DIV

Typical Overload Characteristics

Fig 3

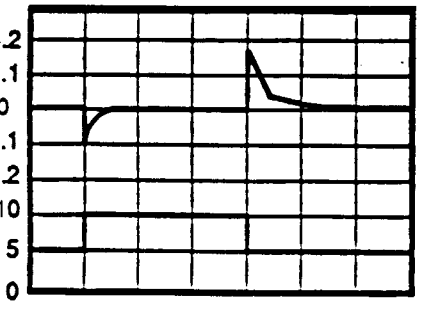


Time (ms)

MAIN OUTPUT - V1 SPECIFICATION

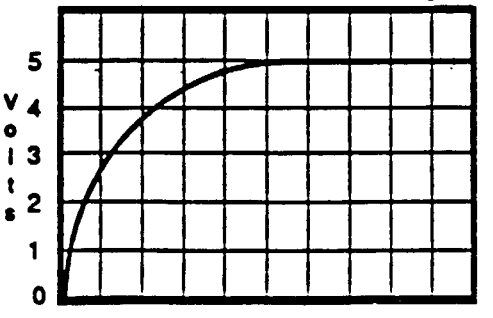
SYMBOL	PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
V_o	Output Voltage			5		V
I_o	Output Current	At 50 ° C ambient	0		14	A
P_o	Output Power	At 50 ° C ambient			70	Watts
T_A	Ambient Temp Range		0		50	°C
$V_{o\ initial}$	Initial Voltage Setting	Factory Set	5.0		5.2	V
$V_{o\ adj}$	Output voltage Adj		4.0		5.8	V
$\frac{\Delta V_o}{V_o \Delta T_A}$	Temperature Coefficient	0 to 50 ° C. After initial 1 hour warm-up.			0.02	%/ °C
ΔV_o	Long Term Voltage Drift	1000 hours			0.3	%
Reg_{line}	Line Regulation	Over input operating range			0.2	%
Reg_{load}	Load Regulation	1-14 Amps			1	%
Reg_{cross}	Cross Regulation	Current Step From Min I_o to Max I_o on V_2, V_1 @ 6.4A		0.1		%
I_{omin}	Minimum Load Current		1			A
I_{omax}	Peak	30 Second Duration max duty ratio 10%			16	A
I_{osc}	Short Circuit Current	I_o during restart period See Fig 3		35		A
V_{ovp}	Overvoltage Protection	Trip voltage	5.6		6.8	V
e_n	Noise and Ripple	20 MHz BW (5 min warm-up)			50	mVpp
t_t	Transient Response Time	50% to 100% step, max overshoot ±150 mV. Recovering to within 1% of regulation band. See Fig 4			500	µs
$t_{d\ on}$	Turn-on Delay	Main Output after AC power (cold)			5	sec
t_r	Rise Time	5% to 95% of V_o, V_1 @ 14A See Fig 5			20	ms
t_{os}	Overshoot	Overshoot as a % of V_o - Startup			0	%

Typical Transient Response
Fig 4



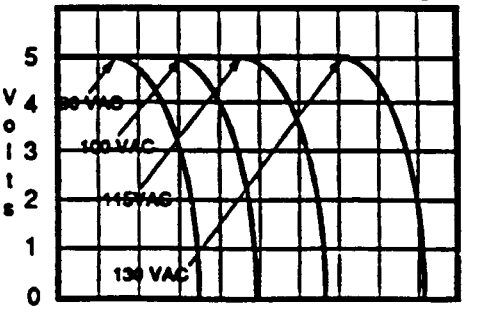
Time: .5 ms/DIV

Typical Rise Time
Fig 5



Time: 5ms/DIV

Typical Hold Up as a Function of VAC
Fig 6



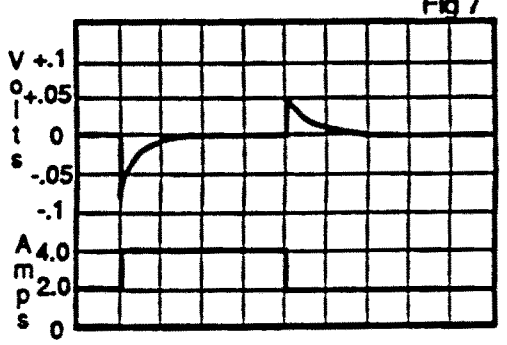
Time: 5ms/DIV

OUTPUT - V2 SPECIFICATION

SYMBOL	PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
V_o	Output Voltage			12		V
I_o	Output Current	At 50 ° C ambient			4	A
P_o	Output Power	At 50 ° C ambient			48	Watts
T_A	Ambient Temp Range		0		50	°C
$V_{o\ initial}$	Initial Voltage Setting	Factory Set	11.9		12.1	V
V_{oadj}	Output voltage Adj		10.2		13.5	V
$\frac{\Delta V_o}{V_o \Delta T_A}$	Temperature Coefficient	0 to 50 ° C. After initial 1 hour warm-up.			0.02	%/ °C
ΔV_o	Long Term Voltage Drift	1000 hours			0.3	%
Reg_{line}	Line Regulation	Over input operating range, V_1 = 5.2V @ 1.0A			0.2	%
Reg_{load}	Load Regulation	0 - 4 Amp, V_1 = 5.2V @ 1.0A			1	%
Reg_{cross}	Cross Regulation	Current step from Min I_o to Max I_o on V_1, V_2 @ 1A		0.1		%
I_{omin}	Minimum Load Current		0			A
I_{omax}	Peak	1 minute duration, max duty ratio 10%			7	A
I_{osc}	Short Circuit Current	I_o during restart period See Fig 3		18		A
e_n	Noise and Ripple	20 MHz BW (5 min warm-up)			120	mVpp
t_t	Transient Response Time	50% to 100% step, V_1 @ 5A, max overshoot ± 100mv. Recovering to within 1% of regulation band. (See Fig 7)			500	µs
$t_{d\ on}$	Turn-on Delay	After AC power is applied (cold)			5	sec
t_r	Rise Time	5% to 95% of V_o , V_1 @ 5A , V_2 @ 4A (See Fig 8)			20	ms
t_{os}	Overshoot	Overshoot as a % of V_o - Startup			0	%

Typical Transient Response

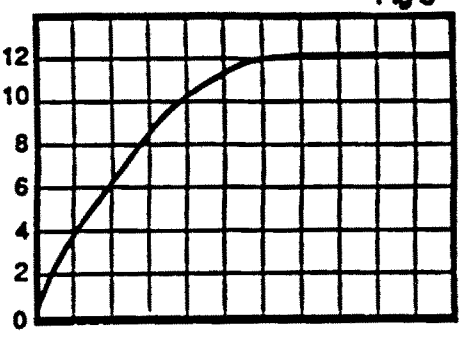
Fig 7



Time: .2ms/DIV

Typical Rise Time

Fig 8



Time: 2ms/DIV

OUTPUT V3 SPECIFICATION

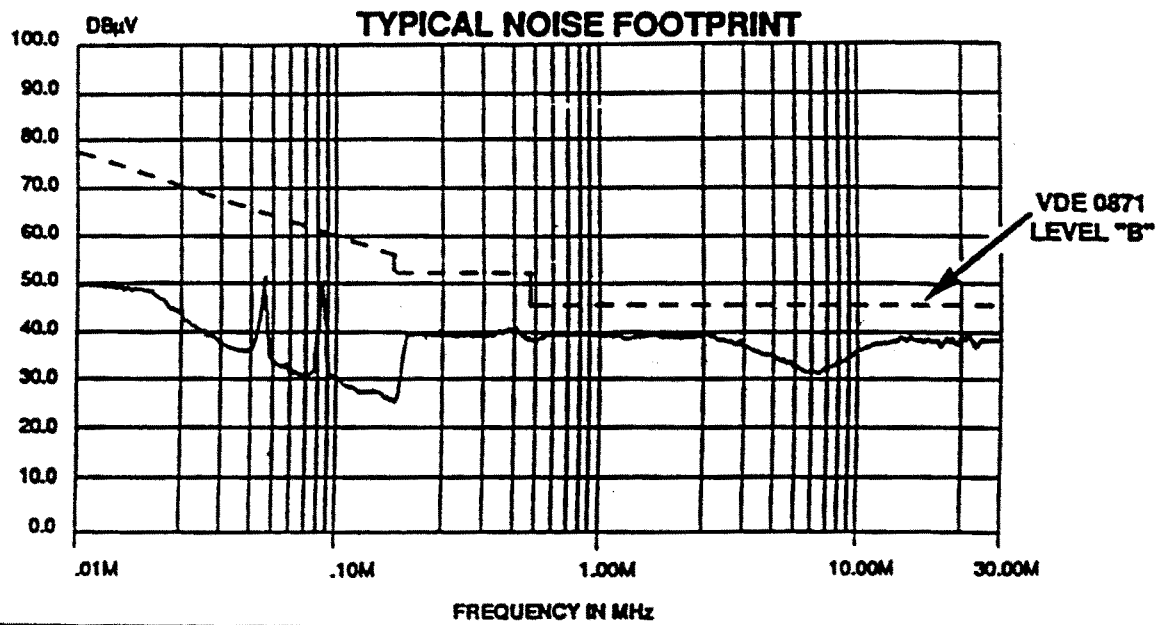
SYMBOL	PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
V_o	Output Voltage			-5		V
I_o	Output Current	At 50°C ambient	0		1	A
P_o	Output Power	At 50°C ambient		5		Watts
T_A	Ambient Temp Range		0		50	°C
$V_{o\ initial}$	Initial Voltage Setting		-4.8		-5.2	V
$\frac{\Delta V_o}{\Delta T_A}$	Temperature Coefficient	0 to 50° C. After initial 1 hour warm-up.		1.5		mV/° C
Reg_{line}	Line Regulation	Over input operating range, V_1 = 5.2V @ 1.0A			0.5	%
Reg_{load}	Load Regulation	0 - 1 A , V_1 @ 1.0A			2	%
I_{omin}	Minimum Load Current		0			A
I_{osc}	Short Circuit Current				3	A
e_n	Noise and Ripple	20 MHz BW			50	mVpp
t_t	Transient Response Time	50% to 100% step Recovering to within 1% of regulation band.		50		µs

OUTPUT V4 SPECIFICATION

SYMBOL	PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
V_o	Output Voltage			-12		V
I_o	Output Current	At 50 ° C ambient	0		1	A
P_o	Output Power	At 50 ° C ambient		12		Watts
T_A	Ambient Temp Range		0		50	°C
$V_{o\ initial}$	Initial Voltage Setting		-11.6		-12.4	V
$\frac{\Delta V_o}{\Delta T_A}$	Temperature Coefficient	0 to 50 ° C After initial 1 hour warm-up		1.5		mV/ °C
Reg_{line}	Line Regulation	Over input operating range, V_1 = 5.2V @ 1.0A			0.5	%
Reg_{load}	Load Regulation	0 - 1A , V_1 = 5.2V @ 1.0A			2	%
I_{omin}	Minimum Load Current		0			A
I_{osc}	Short Circuit Current				3	A
e_n	Noise and Ripple	20 MHz BW			120	mVpp
t_t	Transient Response Time	50% to 100% step Recovering to within 1% of regulation band.		50		µs

SAFETY & EMI

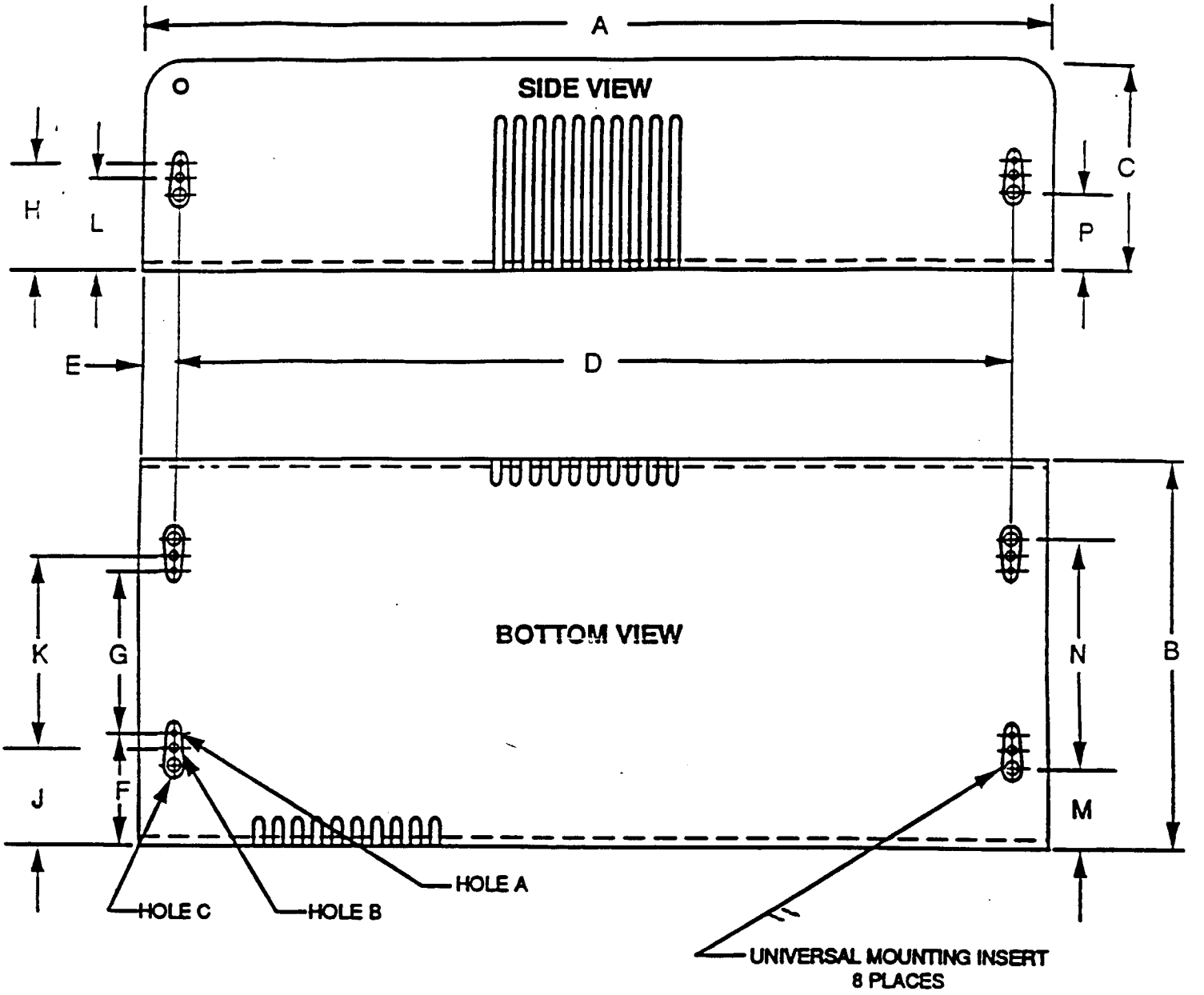
SYMBOL	PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
	Agency Approvals	Class I, SELV STANDARDS UL478 (5th Edition) UL1950(D3) IEC 380, 950 (TUV) VDE 0806, 0805 (TUV) CSA 1402 (C) EN60950 (TUV)				
	Dielectric Withstand	Input to Output Input to Chassis Output to Chassis	1500 1500 500			Vrms/1 min Vrms/1 min Vrms/1 min
	Insulation Resistance	Input to Output Input to Chassis Output to Chassis	7 2 2			meg Ohm meg Ohm meg Ohm
	Leakage Current				500	µ Amps
	EMI Conducted	VDE 0871 (at 230VAC level B) FCC 47 CFR Part 15 (115/230VAC, level B)				



ENVIRONMENTAL

SYMBOL	PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
	Altitude	Operating Non-operating			10000 40000	Feet
	Temperature	Operating Non-operating	0 -40		+50 +85	°C
	Relative Humidity	Non-condensing	5		95	%
	Vibration	Per Mil. Std. 810D Methods 514.3 - 4 and 514.3 - 6				
	Weight				1.7	lbs.

MECHANICAL DIMENSIONS



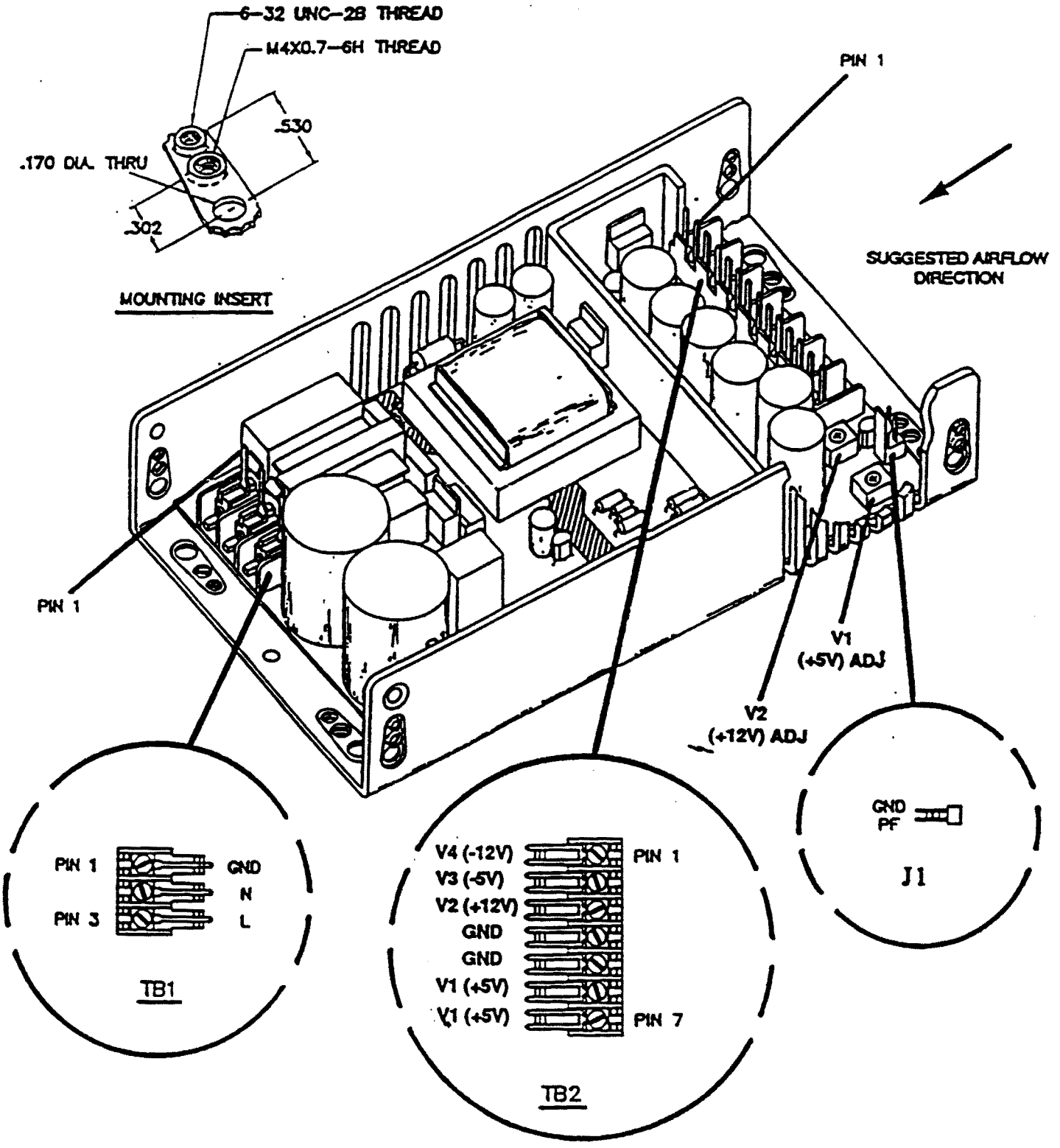
OVERALL SIZE: 7.20" X 4.200" X 1.80"
TOLERANCES: .XXX± .010 (.254mm)
.XX ±.03 (.76mm)
WEIGHT: 1.7 LB., .771 KG.

DIM	IN	mm
A	7.200	182.880
B	4.200	106.680
C	1.800	45.720
D	6.700	170.180
E	.250	6.350

MOUNTING APPLICATION								
6-32 THREAD HOLE "A"			M4 THREAD HOLE "B"			.170 $^{+.003}_{-.000}$ DIA THRU HOLE "C"		
DIM	IN.	mm	DIM	IN.	mm	DIM	IN.	mm
F	1.015	25.781	J	0.787	19.9898	M	0.485	12.319
G	2.170	55.118	K	2.626	66.7004	N	3.230	82.042
H	1.040	26.416	L	0.812	20.6248	P	0.510	12.954

GENERAL

- TB1/TB2 MATES WITH MOLEX (Series 2139) .156" CENTER CRIMP TERMINAL HOUSING OR EQUIVALENT. ALSO ACCEPTS A SPADE TONGUE TERMINAL WITH A MAX WIDTH OF .255 FOR A NO. 6 STUD.
- J1 MATES WITH MOLEX (Series 2695) .100" CENTER CRIMP TERMINAL HOUSING OR EQUIVALENT.
- TORQUE RANGE FOR CUSTOM MOUNTING INSERT IS 7.5-8.5 INCH LBS.



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